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Dept of U.S. Army

RETROFIT (UPGRADE) MANUAL
For
MOBILE MASS SPECTROMETER (MM1)
MANUAL FOR EXCHANGING THE DATACHIP



U.S ARMY SOLDIER BIOLOGICAL AND CHEMICAL COMMAND
PM-NBC DEFENSE SYSTEMS
ABERDEEN PROVING GROUND, MARYLAND 21010-5424

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MM1 RETROFIT MANUAL**Section 1. Retrofit Task Set-up**

COMMON TOOLS:

- (1) 3 mm allen key.
- (2) 5mm Flathead screwdriver.

SPECIAL TOOLS:

- (1) Chip Remover (Fig.1)



Fig.1

MATERIAL

- (1) Electrical Programmable Read-only Memory (EPROM) Datachip- (U5 SGS-T 2764A)-(Fig.2).



Fig.2

- (2) Electrical Erasable programmable Read-only Memory (EEPROM) Datachip- (SIM ALERT)-(Fig.3).



Fig.3

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Section 2. Retrofit Task Preparation of MM1 and Removal of EPROM & EEPROM Datachip

Preparation of MM1:

CAUTION: The MM1 must always be switched off before printed circuit boards, modules and connectors are inserted or removed!

CAUTION: Direct sunlight can erase or change the contents of the datachip and other chips on card <MEM>. Keep datachip and card <MEM> away from direct sunlight!

(1) Switch off MM1. The switch is at the rear left of the MM1 (Fig 4 No.1).

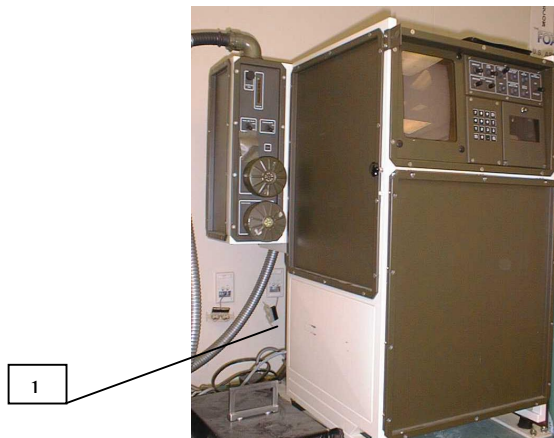


Fig.4 Switch off MM1

(2) Unscrew the fastening screws of the front panel (Fig. 5 No.1) with an allen key (size: 3mm) and remove front panel.

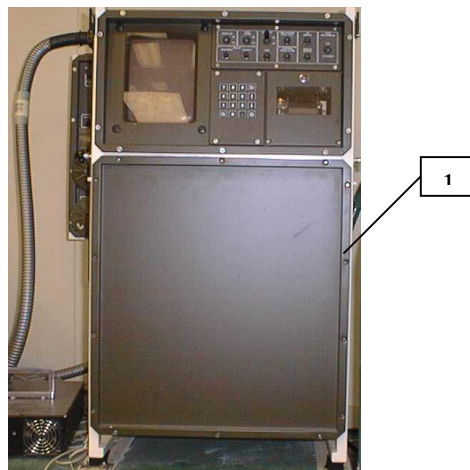


Fig.5 MM1 from front

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- (3) Unscrew the two fastening screws (Fig.6 No.1) of the card <MEM> (Fig.6 No.2) using flathead screwdriver and pull the card carefully out of the housing.



Fig.6 Location of card <MEM>

IMPORTANT: The fastening screw holders (Fig.7 No.1) are fitted in the front panel as captive screws.

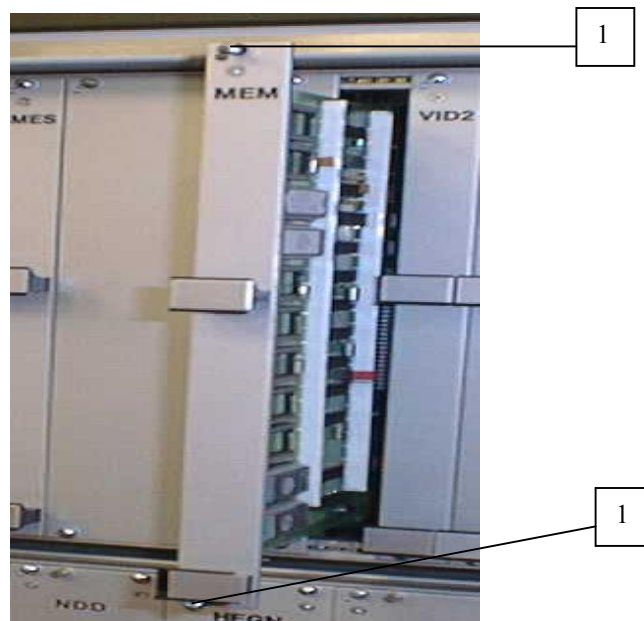


Fig.7 Captive screws

Datachip Removal:

- (4) Put the card <MEM> with the IC's on the top of a table.
 (5) Find the datachip EPROM (Fig.8 No.1) & EEPROM (Fig.8 No.2) on the card.

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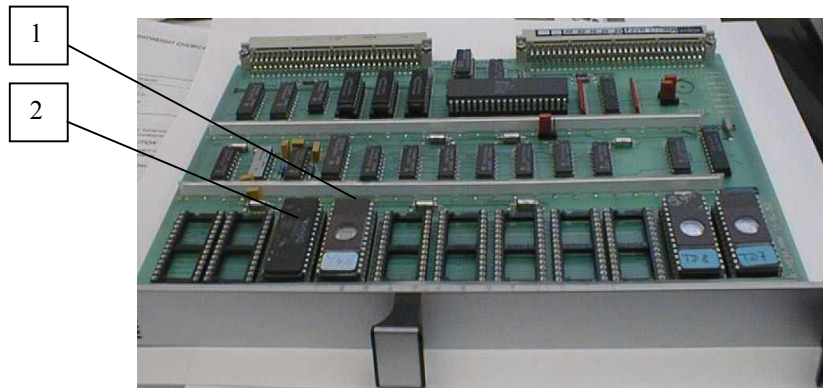


Fig.8 Data chip on card <MEM>

- (6) Set the chip remover on the Datachip EPROM (Fig. 9).
The chip remover has to grasp underneath both ends of the chip.

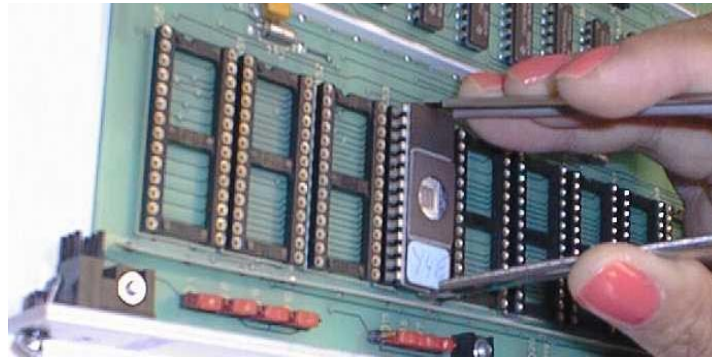


Fig.9 Setting the chip remover on the EPROM chip

- (7) Pull the datachip EPROM even and carefully upwards out of socket (Fig.10). Little movements to each side might make it easier to pull the chip.

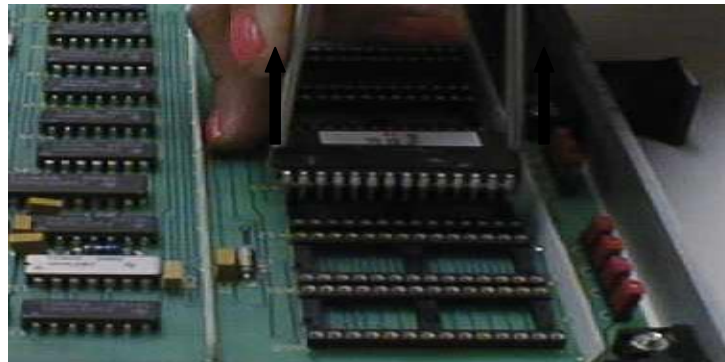


Fig.10 Removing the datachip EPROM

- (8) Remove the EEPROM chip using exact same method with EPROM chip.

Section 3. Installation of EPROM & EEPROM Datachip

- (1) Take the new EPROM datachip out of the storage container.
- (2) Check the new datachip for even pins (Fig.11a & Fig.11b).
Make sure the pins are not bent and not uneven.

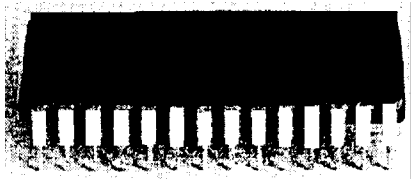


Fig.11a Even Pins



Fig.11b Bent Pins

- (3) Place the datachip loose on the socket.

IMPORTANT: Make sure the chip is in the **correct direction** (the **notch** of the chip is seen in Fig.12a No.1).

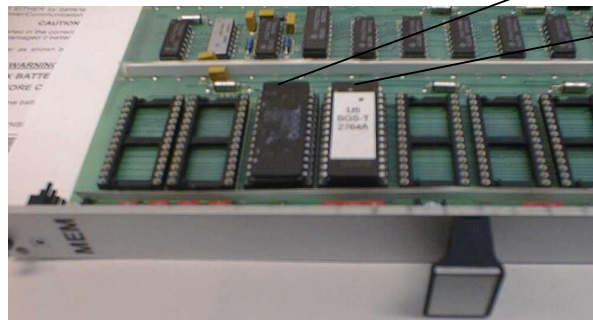


Fig.12a Direction of the chips

- (4) Check all pins for correct fit to the socket (Fig.12b).

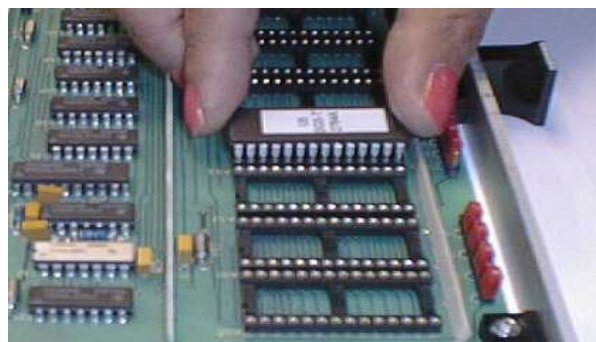


Fig.12b Place the datachip on the socket

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- (5) Press the datachip even and carefully into the socket (Fig.13).

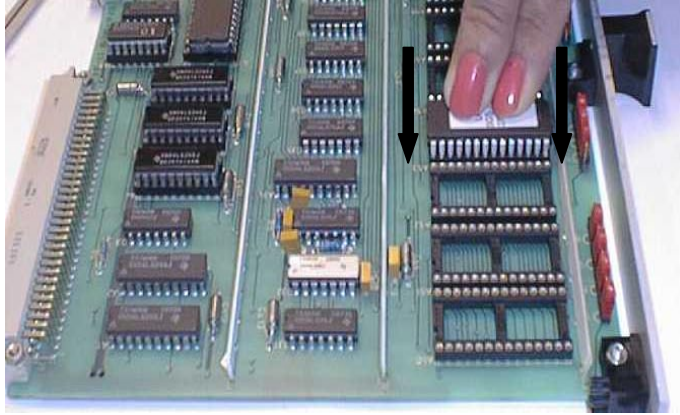


Fig.13 Pressing the datachip into the socket

- (6) Check datachip for bent pins.
If the datachip is placed badly (Fig.14 No.1), remove chip with chip remover and restart with task (3)

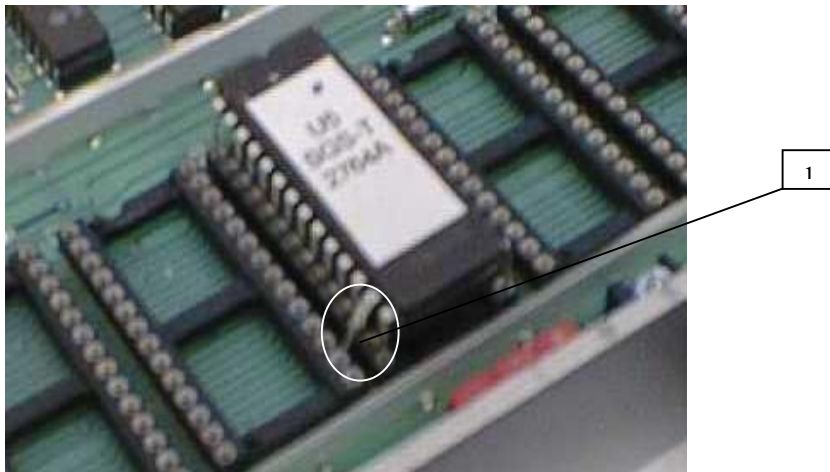


Fig.14 Bad Installation

- (7) Installs the EEPROM chip using the exact same method with the EPROM chip.
(8) Reinsert the card <MEM> straight into the guide rails (Fig.15 No.1) and push it in until the front panel comes up against the housing.

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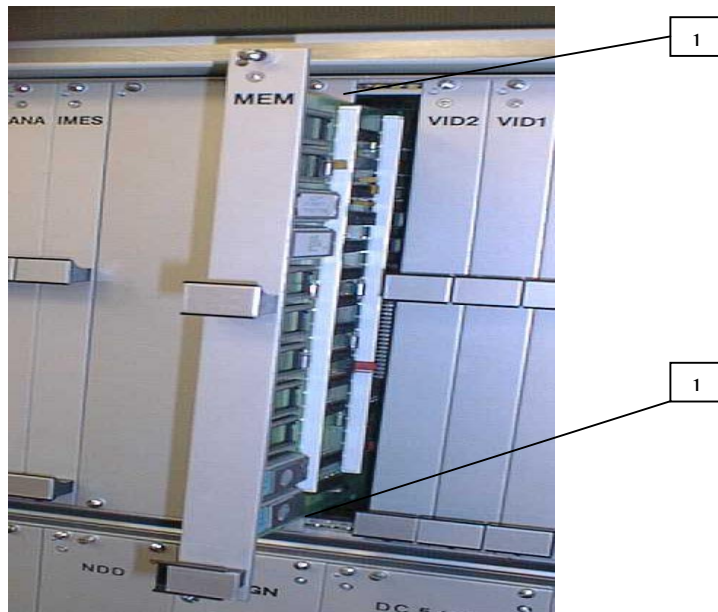


Fig.15 Inserting the card

- (9) Carefully screw the two fastening screws of the <MEM> card into the housing. Make sure the card is fit snugly into the housing (Fig.16 No.1).

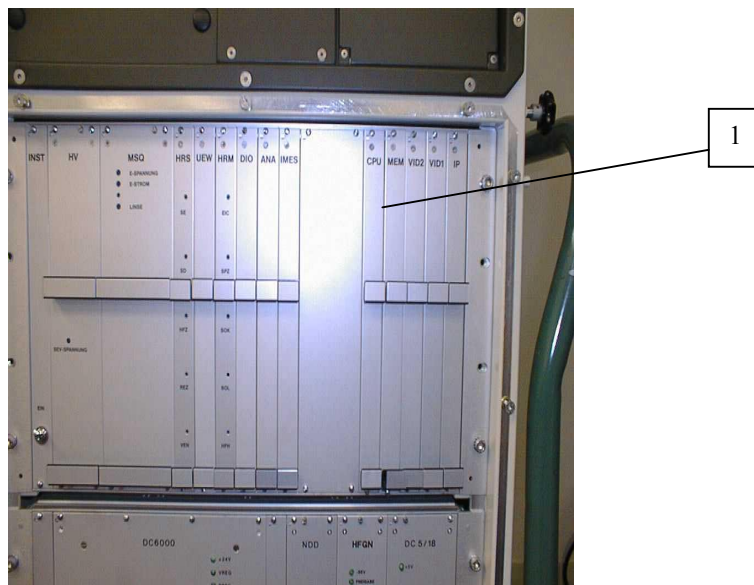


Fig.16 The <MEM> card properly fit into the housing

Section 4. Function Test of EPROM & EEPROM Datachip

(1) Switch on the MM1 (Fig.4 No.1). Wait for the screen to come up (Fig.17).



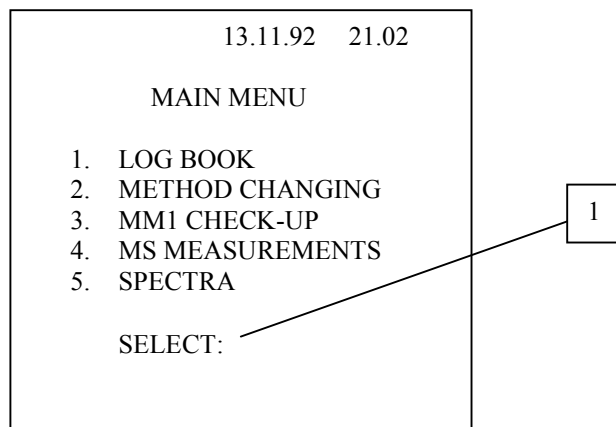
Fig.17 MM1 Screen

(2) Push “Select” button twice (Fig.18a No.1) to get to the **Main Menu** screen (Fig.18b No.1).



Fig.18a MM1 screen menu


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


13.11.92 21.02

MAIN MENU

1. LOG BOOK
2. METHOD CHANGING
3. MM1 CHECK-UP
4. MS MEASUREMENTS
5. SPECTRA

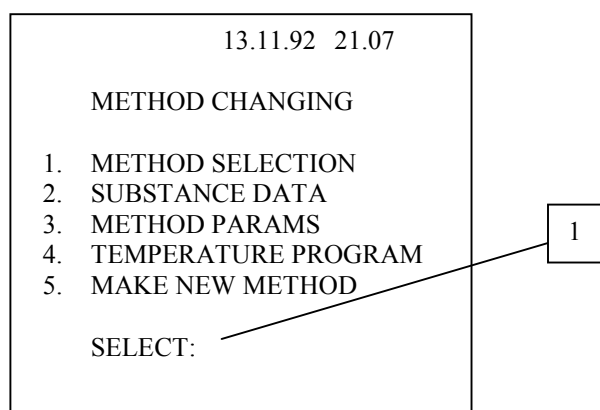
SELECT: 



The image shows a rectangular screen with a black border. At the top, the date and time '13.11.92 21.02' are displayed. Below this is the title 'MAIN MENU'. A list of five options is shown: '1. LOG BOOK', '2. METHOD CHANGING', '3. MM1 CHECK-UP', '4. MS MEASUREMENTS', and '5. SPECTRA'. At the bottom, the word 'SELECT:' is followed by an arrow pointing to the second option, 'METHOD CHANGING'. To the right of the screen, there is a small square box containing the number '1'.

Fig.18b Main Menu Screen


- (4) At **select:** on the main menu, input **2**, then press **enter** (Fig.18a No.2) to go to **Method Changing** screen (Fig.19 No.1).




13.11.92 21.07

METHOD CHANGING

1. METHOD SELECTION
2. SUBSTANCE DATA
3. METHOD PARAMS
4. TEMPERATURE PROGRAM
5. MAKE NEW METHOD

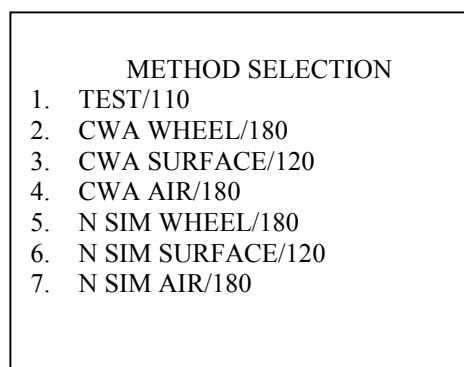
SELECT: 



The image shows a rectangular screen with a black border. At the top, the date and time '13.11.92 21.07' are displayed. Below this is the title 'METHOD CHANGING'. A list of five options is shown: '1. METHOD SELECTION', '2. SUBSTANCE DATA', '3. METHOD PARAMS', '4. TEMPERATURE PROGRAM', and '5. MAKE NEW METHOD'. At the bottom, the word 'SELECT:' is followed by an arrow pointing to the first option, 'METHOD SELECTION'. To the right of the screen, there is a small square box containing the number '1'.

Fig.19 Method Changing Screen

- (5) At **select:** on the method changing menu, input **1**, then press **enter** (Fig.18a No.2) to go to **Method Selection** screen (Fig.20).



METHOD SELECTION

1. TEST/110
2. CWA WHEEL/180
3. CWA SURFACE/120
4. CWA AIR/180
5. N SIM WHEEL/180
6. N SIM SURFACE/120
7. N SIM AIR/180

The image shows a rectangular screen with a black border. At the top, the title 'METHOD SELECTION' is displayed. Below this is a list of seven options: '1. TEST/110', '2. CWA WHEEL/180', '3. CWA SURFACE/120', '4. CWA AIR/180', '5. N SIM WHEEL/180', '6. N SIM SURFACE/120', and '7. N SIM AIR/180'.

Fig.20 Method Selection Screen

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- (6) Check to make sure the method selection screen is correct. If there is any strange display, notify technician.

Note: If any Method from Method 1 through 4 in the Method Selection menu flashing, the EPROM U5 SGS-T 2764A datachip is incorrectly installed.
If any Method from Method 5 through 7 in the Method Selection menu flashing, the EEPROM SIM ALERT datachip is incorrectly installed.

- (7) Switch off MM1 (Fig.4 No.1).
- (8) Screw the front panel down tight with the allen key. Make sure that all screws are uniformly tightened with the same torque value (Fig.21 No.1).

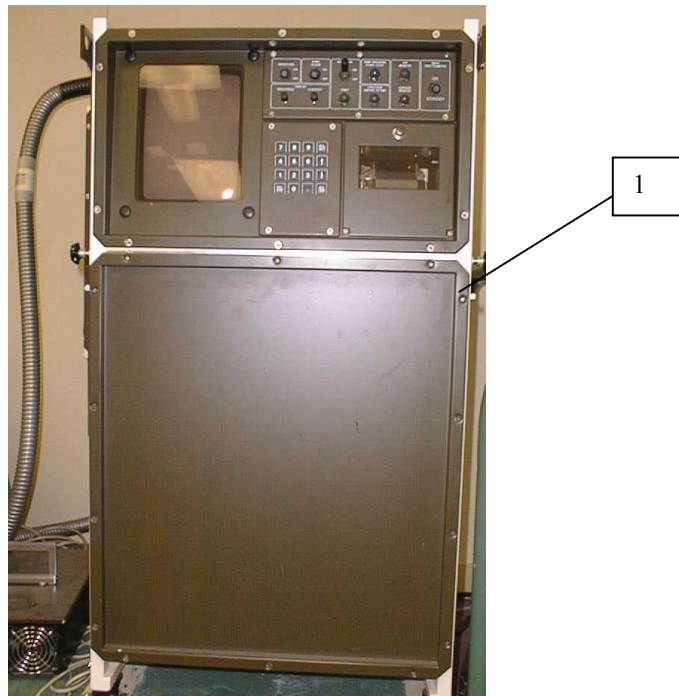


Fig.21 Screw the front panel back in.

End of Task.